REMARKS

Claims 1-23 are pending in this application. By this Amendment, claims 5-7, 13-16 and 23 are amended. Reconsideration of the present application is respectfully requested.

Entry of the amendments is proper under 37 CFR §1.116 since the amendments: (a) place the application in condition for allowance for the reasons discussed herein; (b) do not raise any new issue requiring further search and/or consideration since the amendments amplify issues previously discussed throughout prosecution; and (c) place the application in better form for appeal, should an appeal be necessary. The amendments are necessary and were not earlier presented because they are made in response to arguments raised in the final rejection. Entry of the amendments is thus respectfully requested.

I. THE CLAIMS SATISFY THE REQUIREMENTS OF 35 U.S.C. §112

The Office Action rejects claims 5-9, 14, 15 and 17-22 under 35 U.S.C. §112, first paragraph, for not providing enablement for $m = 2n+2$ and $b = 2a+c+2$ in cyclic compounds. Claims 5-7 and 14-16 are amended to obviate the rejection. Specifically, claims 5-7 and 14-16 are amended to delete $m = 2n+2$ and $b = 2a+c+2$ from the claimed formulae. Accordingly, withdrawal of the rejection under 35 U.S.C. §112, first paragraph, is respectfully requested.

The Office Action rejects claims 7 and 13 under 35 U.S.C. §112, second paragraph, as indefinite. Claims 7 and 13 are amended to obviate the rejection according to the Examiner's suggestions. Accordingly, withdrawal of the rejection under 35 U.S.C. §112, second paragraph, is respectfully requested.

II. THE CLAIMS DEFINE ALLOWABLE SUBJECT MATTER

The Office Action rejects claims 14 and 17 under 35 U.S.C. §102(b) over U.S. Patent No. 4,683,146 to Hirai et al. ("Hirai"), claims 15 and 18 under 35 U.S.C. §102(b) over "Through-Bond Interactions in Silicon-Phosphorus and Silicon-Arsenic Compounds ..."

Chemistry-A European Journal, 3, 874-880 to Winkler et al. ("Winkler"), claims 1-5, 8, 14 and 17 under 35 U.S.C. §103(a) over U.S. Patent No. 5,989,945 to Yudasaka et al. ("Yudasaka") in view of Hirai, claims 7, 16 and 13 under 35 U.S.C. §103(a) over Yudasaka in view of U.S. Patent No. 3,379,512 to Margrave et al. ("Margrave"), claims 10-12 and 19-21 under 35 U.S.C. §103(a) over Yudasaka in view of Hirai and JP 06-191821 to Kotaro et al. ("Kotaro"), claims 13 and 22 under 35 U.S.C. §103(a) over Yudasaka in view of Hirai and U.S. Patent No. 5,667,572 to Taniguchi et al. ("Taniguchi"), claims 1-5, 8, 14 and 17 under 35 U.S.C. §103(a) over WO 97/43689 to Yudasaka et al. ("Yudasaka II") in view of Hirai, claims 7, 16 and 23 under 35 U.S.C. §103(a) over Yudasaka II in view Hirai and Margrave, claims 10-12 and 19-21 under 35 U.S.C. §103(a) over Yudasaka II in view of Hirai and Kotaro, and claims 13 and 22 under 35 U.S.C. §103(a) over Yudasaka II in view of Hirai and Tanaguchi. These rejections are respectfully traversed.

Hirai does not disclose an ink-jet ink composition for forming a silicon film including "the silicon compound having at least one cyclic structure," as recited in independent claim 14.

The Office Action asserts that Hirai teaches cyclic silanes used as silicon precursors used as liquids. However, Hirai fails to disclose the use of cyclic silane used in liquid form. For example, the silane is described as forming a gaseous atmosphere, col. 2, lines 5, 22, 32 and col. 3, line 20. The liquid silicon is vaporized by a vaporizer and is provided as a gas, col. 4, lines 53-59. Silicon compounds used in the gas form cannot be ink-jetted.

The Office Action further asserts that "liquids are ink-jet printable." However, Hirai does not disclose liquid silicon compounds as stated above, and thus, fails to disclose printing by ink-jet. Thus, Hirai does not disclose or suggest use of cyclic silanes as liquids and ink-jet printing. Moreover, one skilled in the art would not have been motivated to modify the

silicon compounds in a gas state to a liquid state and apply the silicon compounds to an ink-jet.

Winkler does not disclose an ink-jet ink composition for forming a silicon film including "the silicon compound having at least one cyclic structure," as recited in independent claim 15.

The Office Action asserts that Winkler teaches a method of synthesizing compounds such as $Si_6H_{12}P_2$. Instead, Winkler discloses that the synthesizing method of $P(SiMe_2)_6P$, but does not disclose the synthesizing method for $Si_6H_{12}P_2$. Thus, the Office Action's assertion that $Si_6H_{12}P_2$ is synthesized in liquids is erroneous.

Yudasaka (Yudasaka II) and Hirai do not disclose a method for forming a silicon film including "the silicon compound having at least one cyclic structure," as recited in independent claim 1, or an ink-jet ink composition for forming a silicon film including "the silicon compound having at least one cyclic structure," as recited in independent claim 14.

The Office Action admits that Yudasaka and Yudasaka II do not teach that the silicon compound is cyclic, but asserts that Hirai makes up for this deficiency. However, as discussed above, Hirai fails to disclose or suggest the use of cyclic silanes as liquids and Yudasaka, Yudasaka II and Hirai do not disclose ink-jet printing. In addition, one skilled in the art would not have been motivated to combine or modify Yudasaka (or Yudasaka II) and Hirai to conceive the claimed invention as discussed above.

Yudasaka (Yudasaka II) and Margrave do not disclose a method for forming a silicon film including a silicon compound $Si_aX_bY_c$ where X represents a hydrogen atom, as recited in dependent claim 7 and independent claims 16 and 23. Instead, Margrave discloses Si_4BF_{11} or Si_5BF_{13} compounds.

Accordingly, Applicants respectfully assert that the rejections under 35 U.S.C. §§102 and 103 should be withdrawn because the applied references, either individually or in combination, do not teach or suggest each feature of independent claims 1, 14-16 and 23.

As pointed on in MPEP §2131, "[t]o anticipate a claim, the reference must teach every element of the claim." Thus, "[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ 2d 1051, 1053 (Fed. Cir. 1987)." Similarly, MPEP §2143.03 instructs that "[t]o establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 409 F.2d 981, 180 USPQ 580 (CCPA 1974)."

For at least these reasons, it is respectfully submitted that independent claims 1, 14-16 and 23 are patentable over the applied references. The remainder of the claims that depend from independent claims 1, 14 and 15 are likewise patentable over the applied references for at least the reasons discussed above, as well as for the additional features they recite.

III. OBVIOUSNESS-TYPE DOUBLE PATENTING REJECTIONS

The Office Action rejects claims 1-23 under the judicially created doctrine of obviousness-type double patenting over claims 1-2, 4-8 and 11-13 of U.S. Patent No. 6,541,354 in view Yudasaka II, claims 13 and 22 over claims 1, 2, 4-8 and 11-13 of U.S. Patent No. 6,541,354 in view of Yudasaka II and Tanaguchi, claims 14-18 and 21 over claims 1, 4, 6 and 9 of U.S. Patent No. 6,527,847, claims 1-9, 12 and 23 over claims 1, 4, 6 and 9 of U.S. Patent No. 6,527,847 in view of Yudasaka II, claims 10-12 and 19-21 over claims 1, 4, 6 and 9 of U.S. Patent No. 6,527,847 in view of Yudasaka II and Kotaro, claims 13 and 22 over claims 1, 4, 6 and 9 of U.S. Patent No. 6,527,847 in view of Yudasaka II and Tanaguchi, claims 1, 3, 10, 11, 13-20, 22 and 23 over claims 1-10, 15 and 16 of U.S. Patent No. 6,518,087, claim 2 over claims 1-10, 15 and 16 of U.S. Patent No. 6,518,087 in view of

Yudasaka II, claims 12 and 21 over claims 1-10, 15 and 16 of U.S. Patent No. 6,518,087 in view of Kotaro, claims 1, 3, 5, 8, 12, 14, 17 and 21 over claims 1-10 and 15 of U.S. Patent No. 6,503,570, claims 2 and 4 over claims 1-10 and 15 of U.S. Patent No. 6,503,570 in view of Yudasaka II, claims 10, 11, 19 and 20 over claims 1-10 and 15 of U.S. Patent No. 6,503,570 in view of Kotaro, and claims 13 and 22 over claims 1-10 and 15 of U.S. Patent No. 6,503,570 in view of Tanaguchi.

A. U.S. Patent Nos. 6,541,354 and 6,518,087

A Terminal Disclaimer is attached to obviate the rejections regarding U.S. Patent Nos. 6,541,354 and 6,518,087. Withdrawal of the rejection under the judicially created doctrine of obviousness-type double patenting is respectfully requested.

B. U.S. Patent Nos. 6,527,847 and 6,503,570

The rejections under the judicially created doctrine of obviousness-type double patenting over U.S. Patent Nos. 6,527,847 and 6,503,570 is respectfully traversed. Specifically, these patents are only assigned to JSR Corporation and not Seiko Epson Corporation. Thus, Applicants' respectfully submit that the present application and U.S. Patent Nos. 6,527,847 and 6,503,570 do not have common ownership. Accordingly, the rejections under the judicially created doctrine of obviousness-type double patenting with respect to U.S. Patent Nos. 6,527,847 and 6,503,570 is improper. Withdrawal of the rejection under the judicially created doctrine of obviousness-type double patenting is respectfully requested with respect to U.S. Patent Nos. 6,527,847 and 6,503,570.

IV. CONCLUSION

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-23 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned representative at the telephone number set forth below.

Respectfully submitted,

James A. Oliff
Registration No. 27,075

Jeffery M. Lillywhite
Registration No. 53,220

JAO:JML/vgp

Attachment:
Terminal Disclaimer

Date: July 8, 2003

OLIFF & BERRIDGE, PLC
P.O. Box 19928
Alexandria, Virginia 22320
Telephone: (703) 836-6400

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